

REMARKS

The Office Action dated June 5, 2006 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-4, 6-12, 16, and 20-21 have been amended to more particularly point out and distinctly claim the subject matter of the invention. New claims 22-24 have been added. No new matter has been added. Therefore, claims 1-24 are currently pending in the application and are respectfully submitted for consideration.

In the Office Action, claims 1-7, 12-14, and 16-19 were rejected under 35 U.S.C. §102(b) as being anticipated by Larsson (U.S. Patent No. 6,282,427). The rejection is respectfully traversed for the reasons which follow.

Claim 1, upon which claims 2-5 are dependent, recites a method including providing quality information regarding quality of results of past measurements associated with location determination by at least two measurement devices, storing the quality information and identity information associated with the at least two measurement devices, and providing selection information for selection of measurement devices for future location determinations based upon the stored quality and identity information.

Claim 6 recites a method including triggering a location process, obtaining selection information for selection of at least one measurement device, the selection information including information of measurement devices that have historically provided measurement information that satisfies a predefined criteria, selecting at least

one measurement device, and locating user equipment based on measurement information from the selected at least one measurement device.

Claim 7, upon which claims 8-11 are dependent, recites a method including storing historical data of various measurements in a mobile system, selecting at least one measurement device based upon the historical data, and self-learning based upon selected historical data associated with measurement devices.

Claim 12, upon which claims 13-15 are dependent, recites a location system including at least two measurement devices configured to provide measurement data for location determination, a quality controller configured to provide quality information regarding quality of results of past measurements by the at least two measurement devices, a storage configured to store quality information of measurements by the at least two measurement devices, and a selection controller configured to provide selection information for selection of measurement devices for future location determinations based upon quality information that is stored in the storage.

Claim 16, upon which claims 17-19 are dependent, recites a network element for a mobile system. The network element includes a processor configured to process quality information associated with the quality of results of past location measurements by a plurality of measurement devices and to provide selection information for selection of at least one measurement device for future location determinations based upon the quality information.

Therefore, the present invention is directed, in part, to a method in which location measurement units (LMUs) are selected on the basis of which LMUs have historically provided the best quality measurements for a specific area, and not simply based on the quality of the geographical location of the LMUs. The claimed invention can provide better quality location information by selecting LMUs according to the success of past measurements, rather than just selecting LMUs according to the quality of geographical location. For example, “if a mobile station to be located happens to be in a concrete building, even a close-by LMU might not be able to receive it, especially if the LMU is situated on the other side of the building” (Specification, page 6, lines 12-16).

As will be discussed below, Larsson fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the advantages and features discussed above.

Larsson discloses an apparatus and method of selecting location measurement units for measuring an uplink signal transmitted by a mobile communication station operating in a wireless communication network in order to locate the position of the mobile communication station in the wireless communication network. The location measurement units to be used in measuring the uplink signal can be identified by evaluating one or more of relative positional relationships between the possible position of the mobile station and a plurality of further positions respectively associated with a plurality of location measurement units in the network, path loss measures predicted for each of a plurality of location measurement units relative to the possible position of the mobile station, and geometric dilution of precision (GDOP) values determined for each

of a plurality of groups of location measurement units with respect to the possible position of the mobile station.

Applicants respectfully submit that Larsson fails to disclose or suggest all of the elements of the present claims. For example, Larsson does not disclose or suggest “providing quality information regarding quality of results of past measurements associated with location determination by at least two measurement devices,” as recited in claim 1. Larsson also fails to disclose or suggest “obtaining selection information for selection of at least one measurement device, the selection information including information of measurement devices that have historically provided measurement information that satisfies a predefined criteria,” as recited in claim 6. Similarly, Larsson does not disclose or suggest “storing historical data of various measurements in a mobile system; selecting at least one measurement device based upon the historical data,” as recited in claim 7. Larsson also does not disclose or suggest “a quality controller configured to provide quality information regarding quality of results of past measurements by the at least two measurement devices,” as recited in claim 12. Additionally, Larsson fails to disclose or suggest “a processor configured to process quality information associated with the quality of results of past location measurements by a plurality of measurement devices and to provide selection information for selection of at least one measurement device for future location determinations based upon the quality information,” as recited in claim 16.

According to certain embodiments of the invention, as illustrated in Figure 3, selection information for the selection of appropriate location measurement units is provided in step 104. The selection of an appropriate location measurement unit may include self-learning based upon historical quality information of the location measurement units. The selection may also include the ranking of possible location measurement units based upon historical quality information of the location measurement units (Specification, paragraphs 0050-0051).

Larsson, on the other hand, merely discloses calculating a rough location area in which the mobile station could possibly be located using the serving cell identity and the Timing Advance Value (Larsson, Column 3, lines 39-42). Next, the MLC searches its database for those location measurement units that are closest to the middle of the location area (Larsson, Column 4, lines 19-21). Larsson, however, fails to disclose or suggest selecting the location measurement unit to be used for a location determination on the basis of the quality of results of past measurements made by the location measurement units. Specifically, Larsson makes no mention of results of past measurements or historical data.

As such, Larsson does not disclose or suggest providing or storing quality information regarding quality of results of past measurements. Larsson, as discussed above, only discloses the selection of location measurement units based on their geographical location. Consequently, Larsson fails to disclose or suggest the limitations of claims 1, 6, 7, 12, and 16, as outlined above.

Thus, Applicants respectfully request that the rejection of claims 1, 6, 7, 12, and 16 be withdrawn. Claims 2-5, 13-14, and 17-19 are dependent upon claims 1, 12, and 16, respectively. Accordingly, claims 2-5, 13-14, and 17-19 should be allowed for at least their dependence upon claims 1, 12, and 16, and for the specific limitations recited therein.

Claims 20 and 21 were rejected under 35 U.S.C. §102(e) as being anticipated by Nowak (U.S. Patent No. 6,968,195). The rejection is respectfully traversed for the reasons which follow.

Claim 20 recites a user equipment for a mobile system. The user equipment includes a processor configured to process quality information associated with the quality of results of past location measurements by a plurality of measurement devices of a first type and to provide selection information for selection of which of said plurality of measurement devices of a first type to use for future location determinations based upon the quality information.

Claim 21 recites a computer program comprising program code means adapted to perform at least one of steps of providing quality information of results of past location measurements by a plurality of measurement devices of a first type and selection information for selection which of said plurality of measurement devices of a first type to use for future location determinations based upon the quality information when the program is run on a computer.

As will be discussed below, Nowak fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above.

Nowak discloses a method and apparatus for managing the selection of location information sources to provide location information for a mobile communications unit. Embedded within a request for location information on a particular mobile communications unit are one or more specifications regarding the quality of the requested location information. The specifications are used to determine if any location information sources are able to provide the location information with the desired location information quality. Upon locating a location information source capable of providing the requested location information, the source is invoked to the particular location information source.

Applicants respectfully submit that Nowak does not disclose or suggest all of the elements of claims 20 and 21. Specifically, Nowak does not disclose or suggest “a processor configured to process quality information associated with the quality of results of past location measurements by a plurality of measurement devices of a first type,” as recited in claim 20. Nowak also does not disclose or suggest “providing quality information of results of past location measurements by a plurality of measurement devices of a first type,” as recited in claim 21.

Nowak only discloses a technique for selecting one of a plurality of types of position determining equipment depending on the accuracy required by the requestor of the location information. More specifically, Nowak states that it “allows a requesting

party to request location information that is specifically tailored to its needs, for example, a requesting party which requires highly accurate geographical information, such as 911 services, are able to request location information from the PDE sources with the highest ‘granularity’ (i.e., highest resolution) in the system” (Nowak, Column 2, lines 54-59). Nowak, therefore, does not disclose or suggest that the quality information is associated with the quality of results of past location measurements by a plurality of measurement devices of a first type. Nowak does not make any mention of the quality of past results of the PDE sources.

As a result, Nowak fails to disclose or suggest “a processor configured to process quality information associated with the quality of results of past location measurements by a plurality of measurement devices of a first type,” as recited in claim 20, and “providing quality information of results of past location measurements by a plurality of measurement devices of a first type,” as recited in claim 21. For at least the reasons discussed above, Applicants respectfully request that the rejection of claims 20 and 21 be withdrawn.

Claims 3, 4, 8-11, and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Larsson in view of Nowak. The rejection is respectfully traversed for the reasons which follow.

Claims 3, 4, 8-11, and 15 are dependent upon claims 1, 7, and 12, respectively. As discussed above, both Larsson fails to disclose or suggest all of the elements of claims 1, 7, and 12. Additionally, Nowak does not cure these deficiencies in Larsson as Nowak

also fails to disclose or suggest providing or storing quality information regarding quality of results of past measurements. Therefore, the combination of Larsson and Nowak does not disclose or suggest all of the elements of claims 3, 4, 8-11, and 15. Furthermore, claims 3, 4, 8-11 and 15 should be allowed for at least their dependence upon claims 1, 7, and 12, and for the specific limitations recited therein.

Applicants respectfully submit that Larsson and Nowak, whether considered alone or in combination, fail to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-24 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Petition for Extension of Time